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PART III.

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EXPLORATIONS AND SURVEYS FOR A RAILROAD ROUTE FROM THE MISSISSIPPI RIVER TO THE PACIFIC OCEAN.
WAR DEPARTMENT.

ROUTES IN CALIFORNIA TO CONNECT WITH THE ROUTES NEAR THE THIRTY-FIFTH AND THIRTY-SECOND PARALLELS, AND ROUTE NEAR THE THIRTY-SECOND PARALLEL, BETWEEN THE RIO GRANDE AND PIMAS VILLAGES, EXPLORED BY LIEUTENANT JOHN G. PARKE, CORPS OF TOPOGRAPHICAL ENGINEERS, IN 1854 AND 1855.

BOTANICAL REPORT:

BY

JOHN TORREY, M. D.

WASHINGTON, D. C.
1856.

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CHAPTER I.

LIST AND DESCRIPTION OF THE PLANTS COLLECTED.

BY JOHN TORREY, M. D.

RANUNCULUS CALIFORNICUS, *Benth. Pl. Hartw. p.* 295. Santa Clara to Los Angeles; February to March. The sepals of this species are frequently partly or entirely white.

DELPHINIUM DECORUM, *Fisch. & Mey. Index sem.* (3) *Tetrop. p.* 33. Cajon Pass; April.

PAEONIA BROWNII, *Dougl. in Hook. Fl. Bor.-Amer.* 1, *p.* 27. P. californica, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 664. In the dried specimens the lower surface of the leaves is of a much lighter green color than the upper.

ARGEMONE HISPIDA, *Gray, Pl. Fendl. p.* 5. Burro mountains, New Mexico; August. The specimens seem to confirm the characters of this species.

ESCHSCHOLTZIA CALIFORNICA, *Hook & Arn.; Torr. & Gray, Fl.* 1, *p.* 664. Santa Barbara and San Diego; February and March. Variable in the size of the flowers. This is the well known "Californian Poppy," now a common plant in gardens.

ESCHSCHOLTZIA DOUGLASII, *Hook. & Arn.; Torr. & Gray, l. c.* Valley of the Salinas river, California; November. The only specimen has a thick ligneous root, like a perennial, which is often seen in the autumnal state of this plant.

DENDROMECON RIGIDUM, *Benth.; Torr. & Gray, Fl.* 1, *p.* 64. San Diego; May, (flowers and fruit.) A low and rather ornamental shrub.

PLATYSTEMON CALIFORNICUM, *Benth.; Torr. & Gray, Fl.* 1, *p.* 65. Tulare valley and San Bernardino; April.

PLATYSTEMON CALIFORNICUM, var. LEIOCARPUM, *Torr. & Gray, l. c.* Los Angeles and San Isabel; March—May. Pedicels and calyx very villous, with long white hairs.

NASTURTIUM CURVISILIQUA, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 73. San José; November, (in fruit.)

CARDAMINE ANGULATA, *Hook.; Torr. & Gray, Fl.* 1, *p.* 84. C. paucisecta, *Benth. Pl. Hartw. p.* 297. Santa Barbara; January.

SISYMBRIUM CANESCENS, *Nutt.; Torr. & Gray, Fl.* 1, *p.* 92. Santa Barbara county; February, (in flower.)

ERYSIMUM ASPERUM, *DC.; Torr. & Gray, Fl.* 1, *p.* 96. Puerto del Dado, New Mexico; July.

ERYSIMUM ASPERUM, var. ELATUM. E. elatum, *Nutt. in Torr. & Gray, l. c.* Santa Inez; January. S. arkansanum, *Nutt.*, is another form of this variable species.

SISYMBRIUM DEFLEXUM, *Harvey Mss.; Torr. in Whipple's Rep.* Santa Clara valley; February.

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SINAPIS ARVENSIS, *Linn.* San Buenaventura ranch; February. Found also by Rev. A. Fitch. Probably introduced from Europe.

SINAPIS NIGRA, *Linn.* Tulare valley; February. This also is an introduced species.

LEPIDIUM NITIDUM, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 116. Santa Clara valley; February.

LEPIDIUM MONTANUM, *Nutt. l. c.* Sauz valley, and Playa de los Pimas; July. The specimens show a decidedly annual root.

DITHYRAEA WISLIZENI, *Engelm. in Wislizen, N. Mex. p.* 95; *Torr. in Sitgreave's Rep. p.* 280, *t.* 2. On the Gila river; June, in flower and fruit. Not observed before so far west. The silicles, even when young, are frequently quite smooth; in other respects agreeing with the character of the plant given by Dr. Engelmann, who has well contrasted this species with D. Californica.

WISLIZENIA REFRACTA, *Engelm. in Wisliz. N. Mex. p.* 99; *Gray, Pl. Wright.* 1, *p.* 11, *t.* 2. On the Gila river. The leaves of these, and of other specimens from the same region, are minutely scabrous.

ISOMERIS ARBOREA, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 124; *Bot. Mag. t.* 3842. Santa Clara valley and near San Diego; February—May. This interesting shrub is not found east of the coast range.

VIOLA PEDUNCULATA, *Torr. & Gray, Fl.* 1, *p.* 141. Santa Clara to Los Angeles; March. As stated in Whipple's Report, this species, V. præmorsa, *Dougl.*, V. linguæfolia, *Nutt.*, and V. Nuttallii, *Pursh*, should, perhaps, be united.

SILENE CALIFORNICA, *Durand. in Jour. Acad. Philad.* (*n. ser.*) 2, *p.* 83. S. pulchra, *Torr. & Gray, Fl.* 1, *p.* 675, (in part.) San Diego; May.

TALINUM AURANTIACUM, *Engelm. in Pl. Lindh.* 2, *p.* 54; *Gray, Pl. Wright.* 2, *p.* 20. On San Pedro river, tributary of the Gila; July.

TALINUM AURANTIACUM, var. ANGUSTISSIMUM, *Gray, Pl. Wright.* 1, *p.* 14, *and* 2, *p.* 20. Burro mountains; August.

CALANDRINIA MENZIESII, *Hook. Fl. Bor.-Amer. p.* 223 *t.* 70. Los Angeles; March.

CLAYTONIA PERFOLIATA, *Donn; Bot. Mag. t.* 1336; *Torr. & Gray, Fl.* 1, *p.* 200 *and* 676. Los Angeles; March. The typical form of the species.

SIDALCEA MALVÆFLORA, *Gray, Pl. Wright.* 1, *p.* 16. S. Neo-Mexicana, *Gray, Pl. Fendl. p.* 23. Rio Mimbres; August.

SIDALCEA HUMILIS, *Gray, Pl. Fendl. p.* 20. Santa Clara to San Diego; February to April.

MALVASTRUM COCCINEUM, *Gray, Pl. Fendl. p.* 24. On the Gila river; June.

SPHAERALCEA INCANA, *Torr. in Gray, Pl. Fendl. p.* 23; *Gray, Pl. Wright.* 1, *p.* 21. With the last.

SPHAERALCEA INCANA, var. DISSECTA, *Gray, l. c.* Chiricahui mountains.

SPHAERALCEA ANGUSTIFOLIA, *Spach*, var. foliis lanceolatis inferioribus nunc hastato-subtrilobatis, *Gray, Pl. Wright.* 2, *p.* 21. San Pedro of the Gila; July.

SPHAERALCEA FENDLERI, *Gray, Pl. Wright.* 1, *p.* 21. On the Gila river; July.

HIBISCUS DENUDATUS, *Benth.* var. INVOLUCELLATUS, *Gray, Pl. Wright.* 1, *p.* 22. Puerto del Dado; July.

ERODIUM CICUTARIUM, *Herit.; Torr. & Gray, Fl.* 1, *p.* 208. Tulare valley and Kikal Mungo; March.

ERODIUM MOSCHATUM, *Willd.; DC. Prodr.* 1, *p.* 647. Los Angeles; March. Probably introduced from Europe; but De Candolle states that it grows in Peru.

LINUM PERENNE, *Linn.; Torr. & Gray, Fl.* 1, *p.* 204. Valley of Los Playas, New Mexico; August.

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OXALIS STRICTA, *Linn.; Torr. Fl. New York*, 1, *p.* 123. San Luis Obispo and Salinas valley; December.

LARREA MEXICANA, *Moricand; Torr. in Emory's Rep. p.* 138, *t.* 3; *Gray, Gen. Ill.* 2 *p.* 119, *t.* 147. Cook's well, west of the Colorado, and from thence east to the Rio Grande. May, in flower and fruit.

CEANOTHUS DIVARICATUS, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 266. San Diego; May, in flower.

CEANOTHUS SPINOSUS, *Nutt. l. c.* Santa Inez; February, in flower. The specimens are scarcely at all spiny.

FRANGULA CALIFORNICA, var. TOMENTELLA, *Gray, Pl. Wright*, 2, *p.* 28. Rhamnus tomentellus, *Benth. Pl. Hartw.* Puerto del Dado; in fruit.

JANUSIA GRACILIS, *Gray, Pl. Wright*, 1, *p.* 37 *and* 2, *p.* 30. Burro mountains, New Mexico; August, in flower. By the aid of excellent fruiting specimens, from Dr. Bigelow's collections, we are able to give a good figure of this plant.—(Tab. I.)

RHUS TRILOBATA, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 219. Puerto del Dado. July, in fruit.

STYPHONIA INTEGRIFOLIA, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 220; *Nutt. Sylv.* 3, *p.* 4, *t.* 82. S. serrata, *Nutt. l. c.* Santa Barbara and Santa Inez. August, in fruit. Both entire and serrate leaves occur on the same specimens.—(Tab. II.)

VITIS ÆSTIVALIS, *Michx.; Torr. & Gray, Fl.* 1, *p.* 244? On the Mimbres. The specimens are without flowers or fruit. The leaves are smaller and less deeply toothed than in the plant of the northern States.

AMPELOPSIS QUINQUEFOLIA, *Michx.; Torr. & Gray, Fl.* 1, *p.* 245. With the last; also in fruit. August.

POLYGALA CUCULLATA, *Benth. Pl. Hartw. p.* 299, *No.* 1661; *Torr. & Gray, in Emory's Report, ined. tab.* —. P. cornuta, *Kellogg, in Proceed. Calif. Acad. N. Sc.* 1, *p.* 62. San Buenaventura ranch; February.

KRAMERIA LANCEOLATA, *Torr. in Ann. Lyc. Nat. Hist. N. York*, 2, *p.* 168, *Gray, Gen. Ill.* 2, *t.* 185 *and* 186. Sauz valley; August, in flower.

KRAMERIA CANESCENS, *Gray, Pl. Wright*, 1, *p.* 42. Desert west of the Colorado; May, flower and fruit.

LATHYRUS VENOSUS, *Muhl.; Torr. & Gray, Fl.* 1, *p.* 274. Cajon Pass, March.

LATHYRUS VESTITUS, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 276. San Gabriel and Santa Inez; January and February.

VICIA OREGANA, *Nutt. in Torr. & Gray, Fl. l. c.* V. truncata, *Nutt. l. c.* San Juan, California; November.

DALEA SPINOSA, *Gray; Pl. Thurb. p.* 315. Cariso creek, and on the Colorado river; June. In favorable situations this remarkable species attains the height of 12 or 15 feet. The trunk is sometimes 4 inches in diameter, and the wood is hard and close-grained. The specimens are in full flower, a state in which we have rarely received the plant. The leaves are very deciduous.—(Tab. III.)

AMORPHA FRUTICOSA, *Linn.; Torr. & Gray, Fl.* 1, *p.* 304. San Pedro of the Rio Gila; July, flowers and young fruit. A very glabrous form of the plant, with scattered glands on the under side only. Calyx with short obtuse teeth.

MELILOTUS PARVIFLORUS, *Desf.; Torr. & Gray, Fl.* 1, *p.* 321. Los Angeles; March. Probably introduced from Europe.

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MEDICAGO DENTICULATA, *Willd.; Torr. & Gray, l. c.* With the last, and also a naturalized plant.

HOSACKIA PUBERULA, *Benth. Pl. Hartw. p.* 305; *Gray Pl. Wright*, 1, *p.* 50. Chiricahui mountains, New Mexico; August.—(Tab. IV.)

HOSACKIA CYTISOIDES, *Benth.; Torr. & Gray, Fl.* 1, *p.* 324. Salinas valley, California; November. Foliage only.

HOSACKIA SCOPARIA, *Benth.; Torr. & Gray, Fl.* 1. *p.* 325. Kikal Mungo and Warner's ranch; March to May.

HOSACKIA STRIGOSA, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 326. San Gabriel and Los Angeles; March.

ASTRAGALUS (PHACA) DENSIFOLIA. Phaca densifolia, J. E. Smith; *Torr. & Gray, Fl.* 1, *p.* 344 *and* 693; *Hook. Ic. t.* 2 *and* 3. P. Nuttallii, *Torr. & Gray, l. c.* San Gabriel and San Bernardino; March.

HOMALOBUS MULTIFLORUS, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 350. Santa Inez. January, flower and young fruit. This agrees very well with Nuttall's specimens, but better with Phaca nigrescens, Hook., which we refer to H. multiflora.

LUPINUS HIRSUTISSIMUS *Benth.; Torr. & Gray, Fl.* 1, *p.* 372. San Gabriel and Santa Clara valley; February and March.

LUPINUS ORNATUS, *Dougl.; Torr. & Gray, Fl.* 1, *p.* 380. San Juan, California; November. A fine shrubby species, well deserving a place in the flower garden.

HOFFMANSEGGIA STRICTA, *Benth. in Gray, Pl. Wright*, 1, *p.* 56. Ojo de Vaca; August.

CASSIA LINDHEIMERIANA, *Scheele; Gray, Pl. Lindheim.* 2, *p.* 179. San Pedro and Burro mountains, New Mexico; July and August. In all the specimens the leaves have but three pairs of leaflets, and they are smaller than in the ordinary form of the plant.

OLNEYA TESOTA, *Gray, Pl. Thurb. p.* 328. On diluvial hills of the Colorado river, near Fort Yuma; March. This, according to Mr. Thuber, is the *Tesota* of the Mexicans, but Mr. Schott informs us that its more common name is *Arbol de hierro*, and that the Acacia Greggii is the true Tesota. There is, however, but little dependence to be placed on the common names of plants, especially among rude and ignorant people.—(Tab. V.)

ACACIA GREGGII, *Gray, Pl. Wright*, 1, *p.* 65. Vallecitas, west of the Colorado; May, in flower; Burro mountains; August, in fruit.

ACACIA CONSTRICTA, *Benth. in Gray, Pl. Wright, l. c.* On the San Pedro, a tributary of the Gila; July.

ACACIA CUSPIDATA, *Schlecht.; Gray, Pl. Wright*, 1, *p.* 66. San Pedro river, and Chiricahui mountains; July.

STROMBOCARPA PUBESCENS, *Gray, Pl. Wright*, 1, *p.* 60. Prosopis (Strombocarpa) pubescens, *Benth.* P. (Strombocarpa) Emoryi, *Torr. in Emory's Rep. p.* 139. P. odorata, *Torr. in Frém. 2d Report, p.* 313 (the fruit only.) Common along the Gila and about San Felipe, &c., California. This is the *Screwbean* or *Screw Mesquite*. The Sonora Mexicans call it *Tornillo*. The figure in Frémont's second report is made up of the foliage and flowers of Algarobia glandulosa and the fruit of Strombocarpa; an error that arose from a mixing of the specimens in the original collections. I have, therefore, in the botany of Williamson's report, given a new figure of this important tree, the fruit of which yields food to man and beast.

ALGAROBIA GLANDULOSA, *Torr. & Gray, Fl.* 1, *p.* 399. Prosopis glandulosa, *Torr. in Ann. Lyc. N. York*, 2, *p.* 192, *t.* 2. Common along the Gila river. Fine specimens, with pods 9 or

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10 inches long, are in the collection. This is the tree so well known under the name of *Mesquite* or *Mesquit*. A gum, resembling gum arabic, exudes from the bark.

CERASUS SEROTINA, *DC.; Torr. & Gray, Fl.* 1, *p.* 410. Sauz valley; August. In fruit.

ADENOSTOMA FASCICULATA, *Hook. & Arn. Bot. Beechey, p.* 139, *t.* 139, *and p.* 338. Near San Diego; not rare. May.

HORKELIA FUSCA, *Lindl. Bot. Reg. t.* 1997; *Torr. & Gray, Fl.* 1, *p.* 435. Near Los Angeles and San Gabriel; March. The petals vary in breadth in different states of the flower.

RUBUS URSINUS, *Cham. and Schlecht. in Linnœa,* 2, *p.* 11. Near Santa Barbara; January.

ROSA BLANDA, *Ait.; Torr. & Gray, Fl.* 1, *p.* 459. On the Mimbres. In fruit; August. The stipular prickles are straight and slender, and there are scattered stiff bristles on the stem.

ROSA CINNAMOMEA, *Linn.; Torr & Gray, Fl.* 1, *p.* 459. On the Salinas, and near San Bernardino; April. Our specimens agree with the European plant in most respects. The leaflets are pulverulent, rusty underneath. The prickles are all stipular and stout.

ZAUSCHNERIA CALIFORNICA, var. α and β. *Torr. & Gray, Fl.* 1, *p.* 486. San Juan, California, and Puerto del Dado; August and November.

ŒNOTHERA CORONOPIFOLIA, *Torr. & Gray, Fl.* 1, *p.* 495. On the Gila river; June.

ŒNOTHERA VINOSA, *Lindl.; Torr. & Gray, Fl.* 1, *p.* 503. Near San Diego; April.

ŒNOTHERA VIMINEA, *Dougl. in Hook. Bot. Mag. t.* 2873. San Isabel; May.

ŒNOTHERA BISTORTA, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 508. With the last; May.

ŒNOTHERA ALBICAULIS, *Nutt.*, var. integrifolia? Kikal Mungo; March. A low form, with leaves on long tapering petioles, and the lamina repand-dentate at the base. It seems to be one of the numerous varieties of Œnothera albicaulis.

ŒNOTHERA CHEIRANTHIFOLIA, *Hornem.; Lindl. Bot. Reg. t.* 1040. Santa Clara, Tulare valley, San Gabriel, &c.; March.

ŒNOTHERA STRIGULOSA, *Torr. & Gray, Fl.* 1, *p.* 512. Los Angeles, &c.; common; March.

APODANTHERA? UNDULATA, *Gray, Pl. Wright.* 2, *p.* 60. San Pedro of the Gila; July. Male flowers only.

CUCURBITA DIGITATA, *Gray, l. c.* On the Burro mountains; August. Flowers or peduncles nearly two inches long. Dr. Gray (l. c.) remarks that the calyx-lobes of the male flowers are obsolete; but they are quite conspicuous in Dr. Antisell's specimens. Santa Barbara and Los Angeles.

MEGARRHIZA CALIFORNICA, *Torr. in Whipple's Rep.;* January and March. This is one of the plants known in California by the name of *big-root* or *giant-root*, of which a more detailed account is given in the work just quoted.

RIBES CALIFORNICUM, *Hook. & Arn. Bot. Beechey, p.* 346. Salinas valley and Santa Inez; January. Some of the specimens have only small sub-axillary species, without scattered prickles; others have strong stipular spines and scattered retrorse prickles. To this species we refer R. occidentale and subvestitum. See Whipple's Report.

RIBES MALVACEUM, *Smith; Torr. & Gray, Fl.* 1, *p.* 552. San Luis Obispo; January.

ECHINOCACTUS LECONTEI, *Engelm. in Proceed. Amer. Acad. Sc.* 3, *p.* 19, *and in Whipple's Pacific R. R. Rep.* Colorado desert, California.

FOUQUIERIA SPLENDENS, *Engelm. in Wisliz. N. Mex. p.* 98; *Gray, Pl. Wright,* 1, *p.* 76, *and* 2, *p.* 63. F. spinosa, *Torr. in Emory's Rep.* 147, *t.* 8, excl. syn. Cariso creek, California; May.

LITHOPHRAGMA CYMBALARIA, *Torr. & Gray, Fl.* 1, *p.* 585. Santa Clara and Santa Barbara; February.

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SANICULA BIPINNATIFIDA, *Dougl. in Hook. Fl. Bor.-Amer.* 1, *p.* 258, *t.* 92. Santa Inez and Los Angeles; February and March. Leaves almost pedate.

ERYNGIUM PETIOLATUM, *Hook. Fl. Bor.-Amer.* 1, *p.* 251. E. articulatum, *Hook. Lond. Jour. Bot.* 6, *p.* 232. Salinas valley; November. A dwarf form of the plant; only 2 to 3 inches high.

PEUCEDANUM UTRICULATUM, *Nutt. in Torr. & Gray, Fl.* 1, *p.* 628. Santa Clara to Los Angeles; February.

SAMBUCUS GLAUCA, *Nutt. in Torr. & Gray, Fl.* 2, *p.* 13. Tulare valley; March. This species occurs also in New Mexico and Oregon.

CEPHALANTHUS OCCIDENTALIS, *Linn.; Torr. & Gray, Fl.* 2, *p.* 31. On the Gila and San Pedro rivers; June and July.

CORETHROGYNE INCANA, *Nutt.; Torr. & Gray, Fl.* 2, *p.* 98. Santa Barbara and Santa Inez; February.

CORETHROGYNE FILAGINIFOLIA, *Nutt.; Torr. & Gray, l. c.; Gray, Pl. Wright.* 1, *p.* 98. C. virgata, *Benth. Bot. Sulphur, p.* 23. San Antonio and San Luis Obispo, California; December and January. Suffrutescent, with a thick woody base.

MACHÆRANTHERA CANESCENS, *Gray, Pl. Wright,* 1, *p.* 89. Dieteria canescens, *Nutt.; Torr. and Gray, Fl.* 1, *p.* 101. Ojo de Vaca; August.

M. CANESCENS, var. LATIFOLIA, *Gray, Pl. Wright,* 2, *p.* 75. Dieteria latifolia, *Torr. in Emory's Rep. p.* 142. Gila river; June.

MACHÆRANTHERA TANACETIFOLIA, *Nees; Gray, Pl. Wright,* 1, *p.* 90. Dieteria coronopifolia, *Nutt.* Mimbres; August. A form with nearly all the leaves bipinnately divided.

ERIGERON CANADENSE, *Linn.; Torr. & Gray, Fl.* 2, *p.* 167. Mission of San Miguel, California; December.

ERIGERON SUBDECURRENS, *Gray, Mss.* Conyza subdecurrens, *DC.? Gray, Pl. Fendl. p.* 78, *and Pl. Wright,* 1, *p.* 102. Salinas river; November.

ERIGERON PHILADELPHICUM, *Linn.; Torr. & Gray, Fl.* 2, *p.* 171. Los Angeles and other places near the Pacific coast; March.

ERIGERON DIVERGENS, *var. cinereum. Gray, Pl. Wright,* 2, *p.* 91. Los Playas valley, New Mexico; August.

ERIGERON DOUGLASII, *Torr. & Gray, Fl.* 2, *p.* 177. Los Angeles; March.

DIPLOPAPPUS ERICOIDES, *Torr. & Gray, Fl.* 2, *p.* 182. Ojo de Vaca, New Mexico; August.

GUTTIERREZIA MICROCEPHALA, *Gray, Pl. Fendl. p.* 74, (*adnot.*) Sauz valley, New Mexico; August.

SOLIDAGO CALIFORNICA, *Nutt.; Torr. & Gray, Fl.* 2, *p.* 203. San Luis Obispo and other parts of California; March and April.

SOLIDAGO SEMPERVIRENS, *Linn.? Torr. & Gray, Fl.* 2, *p.* 211, var.? with crowded, nearly erect paniculate racemes. It may be only a form of S. Mexicana. Santa Barbara county, California.

APLOPAPPUS GRACILIS, *Gray, Pl. Fendl. p.* 76. Puerto del Dado, New Mexico; July.

APLOPAPPUS MENZIESII, *Torr. & Gray, Fl.* 2, *p.* 242. SantaBarbara, California; February. A form with pubescent leaves; the same that is noticed in Emory's Report, p. 142.

APPLOPAPUS (§ ACAMPTOPAPPUS) SPHÆROCEPHALUS, *Harv. & Gray, Pl. Fendl. p.* 76, (*adnot.*) San Felipe; May. This rare plant is a shrub, from one to two feet high, with elongated branches which bear from one to four large heads. The scarious margins of the involucral scales are lacerate-fimbriate. The pappus and the very villous achenium are of a brilliant silvery white. Cauline leaves linear-lanceolate, somewhat crowded, six to eight lines long and about two wide,

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mucronate; those of the branches shorter and more distant; all perfectly smooth. Stem and older branches whitish. We believe that this interesting plant has not been found before, since it was discovered in California by Coulter.—(Tab. VI.)

TESSARIA BOREALIS, *Torr. & Gray; Gray Pl. Fendl. p.* 75; *Torr. in Sitgr. Rep. p.* 162, *t.* 5. On the Colorado, Gila, &c.; June. The stems of this plant are used by the Indians for making their arrows.

BACCHARIS CŒRULESCENS, *DC. Prodr.* 5, *p.* 402. On the Gila river, &c.; June.

BACCHARIS DOUGLASII, *DC.*; *Torr. & Gray, Fl.* 2, *p.* 259. San Bernardino; March.

BACCHARIS CONSANGUINEA, *DC.; Torr. & Gray, Fl.* 2, *p.* 259. Near San Jose, and banks of the Salinas; November. Some of the specimens have mature fertile heads, which we had not seen before. The branches often bear gall-like excrescences, similar to those occurring on B. pilularis, to which this species is, perhaps, too nearly allied.

ZINNIA PUMILA, *Gray, Pl. Fendl. p.* 81, (*adnot.*) *& Pl. Wright*, 1, *p.* 105. Sauz valley; August. A stout and much-branched form, 6 to 8 inches high. Another dwarf variety, with longer leaves and shorter rays than usual, was found on the Chiricahui mountains and on the R. Mimbres.

HYMENOCLEA SALSOLA, *Torr. in Smithson. Contrib.* (*Pl. Frémont*) *p.* 14, *t.* 8. San Felipe. This, I fear, is only a monstrous state of H. monogyra.

HELIANTHUS PETIOLARIS, *Nutt.; Torr. & Gray*, 2, *p.* 309. On the Salinas river, and near Los Angelos.

XIMENESIA ENCELIOIDES, *Cavan.; Torr. & Gray, Fl.* 2, *p.* 359. Gila river, &c.; rather common; June.

HELIOMERIS.—San Bernardino, San Gabriel, &c.; February.

ENCELIA CALIFORNICA, *Nutt. in Trans. Amer. Phil. Soc.* (*n. ser.*) 7, *p.* 357. Santa Inez Mission; December.

RIDDELLIA TAGETINA, *Nutt. l. c.; Torr. & Gray, Fl.* 2, *p.* 362. Burro and Chiricahui mountains; August.

GAILLARDIA PULCHELLA, *Foug; Torr. & Gray, Fl.* 2, *p.* 366. Los Playas; August.

CHENACTIS TENUIFOLIA, *Nutt.; Torr. & Gray, Fl.* 2, *p.* 370. San Diego; May. Much stouter than Nuttall's original specimens, and more than two feet high.

HYMENOPAPPUS FLAVESCENS, *Gray, Pl. Fendl. p.* 97; *& Pl. Wright*, 1, *p.* 121. Burro mountains; August.

BAHIA CONFERTIFLORA, *DC.; Torr. & Gray, Fl.* 2, *p.* 374. Near San Diego, and on the Salinas river; December, April.

BURRIELIA TENERRIMA, *DC.; Torr. & Gray, Fl.* 2, *p.* 385. On the Salinas river; November,

ACTINELLA LINEARIFOLIA, *Torr. & Gray, Fl.* 2, *p.* 383. *Gray, Pl. Wright.* 1, *p.* 122, *and* 2. *p.* 96. Along the Gila river; June.

LAYIA ELEGANS, *Nutt.; Torr. & Gray, Fl.* 2, *p.* 394. Kikal Mungo, California; March.

LAYIA GLANDULOSA, *Hook. and Arn. Bot. Beechey, p.* 358. Near Los Angelos; March.

LAYIA PLATYPHYLLA, *Gray, Pl. Fendl. p.* 103 (*adnot.*) Callichroa platyphylla, *Fisch. & Mey.; Torr. & Gray, Fl.* 2, *p.* 395. Santa Clara to Los Angelos; March.

HEMIZONIA RUDIS, *Benth. Bot. Sulphur, p.* 31. San Jose valley; November. Frémont collected the same plant in California in his expedition of 1845–'47. The root is decidedly annual in Dr. Antisell's specimens.

BAILEYA MULTIRADIATA, *Harv. & Gray, in Emory's Rep. p.* 144, *t.* 6, *& in Pl. Fendl. p.* 106, *Gray, Pl. Wright.* 1, *p.* 123. Sauz valley; August.

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VENEGASIA CARPESIOIDES, *DC. Prodr.* 6, *p.* 43; *Torr. & Gray, Fl.* 2, *p.* 410. San Buenaventura ranch, and near San Gabriel; February. A rare plant, which only Douglas and Nuttall had previously collected.

MATRICARIA DISCOIDEA, *DC.; Torr. & Gray, Fl.* 2, *p.* 413. Near Los Angeles; March. Introduced from Europe, and now common in California, New Mexico, and in many other places.

ARTEMISIA PYCNOCEPHALA, *DC.; Torr. & Gray, Fl.* 2, *p.* 416. Salinas valley; November. Our plant agrees well with the description of De Candolle, except that the segments of all the leaves are narrowly linear.

ARTEMISIA BIENNIS, *Willd. Sp.* 3, *p.* 1842; *Torr. & Gray, Fl. l. c.* Rio Pajaro and on the Salinas; November. Not found before west of the Rocky Mountains.

GNAPHALIUM CALIFORNICUM, *DC.; Prodr.* 6, *p.* 224. San Gabriel; March. A variety with broader leaves, and the scales of the involucre more obtuse, was found at San Juan and in other places; November.

GNAPHALIUM SPRENGELII, *Hook. & Arn. Bot. Beechey, p.* 150. Burro mountains; common; August.

ANTENNARIA MARGARITACEA, *R. Br.; Torr. & Gray, Fl.* 2, *p.* 429. Salinas valley; November. Rare in California.

SENECIO LONGILOBUS, *Benth. Pl. Hartw. p.* 18; *Gray, Pl. Fendl. p.* 108. Solidad Mission; December.

SENECIO CALIFORNICUS, *DC. Prodr.* 6, *p.* 426. San Gabriel; March. Leaves varying from pinnatifid to nearly entire.

CALAIS LINEARIFOLIA, *DC.; Torr. & Gray, Fl.* 2, *p.* 471. Near San Gabriel; March.

CALAIS MACRACHAETA, *Gray, Pl. Fendl. p.* 112, (*adnot.*) *and in Whipple's Rep. ined.* With the last.

STEPHANOMERIA MINOR, *Nutt.; Torr. & Gray, Fl.* 2, *p.* 472. Colorado desert; April.

LOBELIA TEXENSIS, *Raf.; DC. Prodr.* 7, *pars* 2, *p.* 383? River Mimbres; August. Very near L. cardinalis, but with smaller flowers: perhaps only a variety of that species.

ARCTOSTAPHYLOS TOMENTOSA, *Dougl. in Lindl. Bot. Reg.* A. cordifolia, Lindl. No. 1791, (*adnot.*) Santa Inez, California; February.

DODECATHEON MEADIA, *Linn.* var. D. integrifolium, *Michx.* D. frigidum, *Cham.; Hook. Fl. Bor. Am.* 2, *p.* 118. San Gabriel, California; March.

ANAGALLIS ARVENSIS, *Linn.* Common about Los Angeles and in many other places in California. A native of Europe, but now completely naturalized; March, April.

PLANTAGO PATAGONICA. *Jacq.* var. GNAPHALIOIDES. P. gnaphalioides, *Nutt. Gen.* 1, *p.* 100. Los Playas, New Mexico, August. A low form, with short few-flowered heads, was found near San Gabriel, California.

CHILOPSIS LINEARIS, *DC. Prodr.* 9, *p.* 227. *Engelm. in Wisliz. N. Mex. p.* 94. Vallecitas, California, and Puerto del Dado, New Mexico; May, July. Leaves variable in breadth and not always glutinous. There appears to be but one species.

ANTIRRHINUM GLANDULOSUM, *Lindl.; Benth. in DC. Prodr.* 10, *p.* 291. San Isabel, California; May.

PENTSTEMON SPECTABILIS, *Thurb. Mss.; Gray, in Bot. Whipple's Rep.* San Isabel, California; May. Mr. Thurber found it near San Pasqual, and Mr. Wallace in the same region. It was collected, also, by Dr. Bigelow on San Francisco mountain, New Mexico.

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PENTSTEMON THURBERI: shrubby, much branched, very smooth; tube of the corolla very short, tubular-funnelform; lobes of the limb ovate; sterile filament smooth. Burro mountains, New Mexico; August. This is No. 1056 of the collection of Mr. Thurber, who found it in Sonora and indicated to me the characters in which it differs from P. ambiguus. The tube of the corolla in the latter is nearly three-fourths of an inch long, and curved, while the whole length of the flower of the former is not half an inch.

PENTSTEMON LINARIOIDES, *Gray, Mss.* Chiricahui mountains, New Mexico; August. This species will be described in the botany of Capt. Whipple's Pacific Railroad Report. It belongs to the section Cepscosmus, and is No. 1472 of Wright's New Mexican collection, and No. 331 of Thurber's.

PENTSTEMON CENTRANTHIFOLIUS, *Benth. Scroph. Ind. p.* 7, (*adnot.*) *& in DC. Prodr.* 10, *p.* 323. Kikal Mungo mountain and Solidad; March and December. A handsome scarlet-flowered species.

SCROPHULARIA NODOSA, *Linn.; Benth. in DC. Prodr.* 10, *p.* 309. San Bernardino and Los Angeles; March and April. Leaves varying from serrate to deeply lobed, with the lobes sharply toothed.

DIPLACUS GLUTINOSUS, *Nutt. in Tayl. Ann. Nat. Hist.* 1, *p.* 138; *Benth. in DC. Prodr.* 10, *p.* 368. D. leptanthus, *Nutt. l. c.* San Isabel, &c.; May. A beautiful flowering shrub with red or orange yellow flowers. It is variable in the breadth of the leaves as well as in the length of the peduncles.

D. GLUTINOSUS var. PUBESCENS: branches and under surface of the leaves pubescent; peduncles many times shorter than the calyx. D. longiflorus, *Nutt. l. c.; Benth. l. c.* Between San Bernardino and San Diego; April. Peduncles, 2–3 lines long. Calyx, nearly an inch in length. The corolla in this variety is pale yellow or, sometimes, almost cream color.

MIMULUS LUTEUS, *Linn.; Benth. in DC. Prodr.* 10, *p.* 370. Near Los Angeles; March.

MIMULUS BREVIPES, *Benth. Scroph. Ind. p.* 28. *& in DC. Prodr. l. c.* San Isabel, and from San Luis Rey to San Diego; May. The specific name is not appropriate, for the peduncles are one third of an inch long. This and several other species resemble Diplacus in the placentae remaining adnate to the valves of the capsule after dehiscence.

EUNANUS FREMONTI, *Benth. in DC. Prodr.* 10 *p.* 374, *var. major;* larger, more branching and whitish pubescent. Kikal Mungo mountain; March.

COLLINSIA BICOLOR, *Benth. in Hort. Trans. Lond.* 1, *p.* 480. San Diego, &c.; March—April.

ORTHOCARPUS PURPURASCENS, *Benth. Scroph. Ind. p.* 13 *& in DC. Prodr.* 10, *p.* 536. San Bernardino, Los Angeles, &c.; March—April

CASTILLEJA FOLIOLOSA, *Hook. & Arn. Bot. Beechey, p.* 154. San Bernardino to San Gabriel; April. The specimens are decidedly annual, but the plant is described as suffruticose!

CASTILLEJA AFFINIS, *Hook. & Arn. l. c.; Benth. l. c.* Cajon Pass and Santa Barbara; February and March.

VERBENA BIPINNATIFIDA, *Nutt.; Schauer in DC. Prodr.* 11, *p.* 553. Los Playas, &c.; August.

VERBENA AUBLETIA, *Linn.; Schauer, l. c.* Chiricahui mountains, New Mexico; August. A showy species; often seen in gardens.

VERBENA PROSTRATA, *R. Brown; Schauer, l. c.* V. lasiostachys, *Link; Hook & Arn.* Banks of the Salinas river and Santa Barbara; December.

VERBENA HASTATA, *Linn.; Pursh, Fl.* 2, *p.* 416. V. paniculata, *Lam.* River Mimbres, New Mexico; August.

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MICROMERIA DOUGLASII, *Benth. in DC. Prodr.* 12, *p.* 223. Salinas valley, California; November.

SALVIA CARDUACEA, *Benth. Lab. p.* 302. S. Gossypina, *Benth. Pl. Hartw. p.* 330. Los Angeles; March.

SALVIA COLUMBARIÆ, *Benth. l. c.* With the last. Commonly not more than a foot high, but often smaller and sometimes much larger. All the specimens have annual roots.

AUDIBERTIA POLYSTACHYA, *Benth. Lab. p.* 414, *and in DC. Prodr.* 12, *p.* 360. San Luis Rey and San Diego; April. Stem nearly four feet high, simple, the upper half of the plant bearing opposite spikes, which are about two inches in length. Lower leaves two and a half inches long and an inch wide, conspicuously petioled. The whole plant is canescent.

AUDIBERTIA STACHYOIDES, *Benth. l. c.* Santa Clara and San Diego; April. A branching shrub, with the foliage resembling that of the common garden sage.

AMSINCKIA SPECTABILIS, *Fisch. & Mey. Ind. Hort. Petrop.* 1835. Los Angeles and Santa Clara valley; March. A slender form of the plant was collected near Santa Barbara.

ERITRICHIUM FULVUM, *Alph. DC. Prodr.* 10, *p.* 132. Santa Barbara, San Bernardino, and other places in California; April.

PLAGIOBOTRYS CANESCENS, *Benth. Pl. Hartw*, *p.* 326. San Gabriel, &c.; April. A common Californian plant. The genus is hardly distinct from Eritrichium.

ERITRICHIUM CHORISIANUM, *DC. l. c.* Myosotis Chorisiana, *Cham. and Schlecht.* Salinas valley; November.

HELIOTROPIUM CURASSAVICUM, *Linn.; DC. Prodr.* 9, *p.* 539. On the Gila river; common; June.

NEMOPHILA PARVIFLORA, *Benth. Linn. Trans.* 7, *p.* 275. San Gabriel and Los Angeles; March.

NEMOPHILA INSIGNIS, *Benth. l. c.* Santa Barbara; also between Santa Clara and Los Angeles; March.

NEMOPHILA AURITA, *Lindl. Bot. Reg. t.* 1601; *Alph. DC. Prodr.* 9, *p.* 290. Los Angeles; March.

PHACELIA (EUTOCA) PARRYI, *Torr. in Bot. Mex. Bound. ined.* San Isabel, California; May. This species connects Whitlavia with Phacelia, agreeing with the former in the scales at the base of the stamens, and with Phacelia (Eutoca) in the form of the corolla.

WHITLAVIA GRANDIFLORA, *Harv. in Hook. Lond. Jour. Bot.* 5, *p.* 311, *t.* 11. San Bernardino and Kikal Mungo mountain; March and April. Flowers varying from eight lines to an inch and a half in length. The cultivated plant is also variable. We think that W. minor, *Harv. l. c. t.* 12, is only a small form of W. grandiflora.

PHACELIA CIRCINATA, *Jacq. Ecl.* 1, *t.* 91; *Alph. DC. Prodr.* 9, *p.* 299. San Gabriel, &c.; May.

PHACELIA TANACETIFOLIA, *Benth. in Linn. Trans.* 17, *p.* 280. Santa Barbara to San Isabel; February, May.

ERYTHRÆA FLORIBUNDA, *Benth. Pl. Hartw.*, *p.* 322. Banks of the Salinas river; November. Plant 5—7 inches high. This and the other species of the genus are known in California by the name of *Canchalagua*, a bitter tonic of considerable celebrity.

ERYTHRÆA TRIACHANTHA, *Griseb. in DC. Prodr.* 9, *p.* 60. On the Gila river, above the Pimas villages; June.

CONVOLVULUS LOBATUS, *Engelm. & Gray, Pl. Lindh.* 1, *p.* 44, (*adnot.*) C. hastatus, *Nutt. in Trans. Amer. Phil. Soc.* (*n. ser.*) 5, *p.* 194; *not of Thunb.* **Burro mountains; August.**

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IPOMAEA NIL, *Roth;* Pharbitis Nil, *Choisy in DC. Prodr.* 9, *p.* 343. On the Organ mountains, New Mexico; August.

CALYSTEGIA SEPIUM, *R. Brown; Choisy in DC. Prodr.* 9, *p.* 433. Santa Barbara; February. With much smaller leaves and flowers than usual.

EVOLVULUS ARGENTEUS, *Pursh, Fl.* 1, *p.* 187. *Nutt. Gen.* 1, *p.* 174. *E. pilosus, Nutt. in Trans. Amer. Phil. Soc.* (*n. ser.*) 5, *p.* 194. Ojo de Vaca; August.

NAMA BIFLORA, *Choisy in DC. Prodr.* 10, *p.* 183., var.? SPATHULATA: annual, erect when young, but finally prostrate or diffuse, pubescent; leaves linear or oblong, spatulate, obtuse; flowers solitary in the axils, or 2—3 together in terminal leafy racemes; sepals spatulate-linear; corolla nearly twice as long as the calyx. N. Jamaicensis? *Engelm. and Gray, Pl. Lindh.* 1, *p.* 183. On the Gila river; June. A common plant in New Mexico and in southern California. It is variable in the breadth of the leaves, and is probably distinct from N. Jamaicensis. N. undulata, *H. B. K.*, grows in New Mexico, unless what I have so called may be only another form of this species.

GILIA TRICOLOR, *Benth. in Bot. Reg. sub* No. 1622. Los Angeles; March. A small early form.

GILIA MICRANTHA, var. AUREA, *Benth. Pl. Hartw., p.* 325. G. aurea, *Nutt. Pl. Gamb., p.* 155, *t.* 22? Santa Clara to Los Angeles; March.

GILIA LONGIFLORA, *Don.; Torr. in Sitgreave's Rep., p.* 165, *t.* 7. Cantua longiflora, *Torr. in Am. Lyc. N. York,* 2, *p.* 221. Los Playas and Sauz valley; August.

GILIA INCONSPICUA, *Dougl. in Bot. Mag., t.* 2883. Between Santa Clara and Los Angeles; February and March.

GILIA DENSIFOLIA, *Benth. in DC. Prodr.* 9, *p.* 311. San Felipe and Cariso creek; May—June.

GILIA DIANTHOIDES, *Endl. Atakt., t.* 29; *Benth. l. c.* Santa Barbara, Los Angeles, &c.; March. Taller than usual.

GILIA ANDROSACEA, *Steudel, Nomencl.; Benth. l. c.* Warner's ranch; May. Calyx yellow, Corolla pale lilac.

GILIA CALIFORNICA, *Benth. in DC. Prodr.* 9, *p.* 316. Leptodactylon Californicum, *Hook. & Arn. Bot. Beechey, p.* 369, *t.* 89. Santa Inez Mission and Santa Clara valley; February. A shrubby species, sometimes attaining the height of four or five feet.

NAVARRETIA SQUARROSA, *Hook. and Arn. l. c.; Benth. l. c.* var. DIFFUSA: Stems diffusely branching; cells of the capsule 7–8 seeded. Salinas valley; November.

SOLANUM UMBELLIFERUM, *Eschsch. Mem. Acad. St. Petersb.* 10, *p.* 281; *Dunal in DC.* 13, *pars* 1, *p.* 93. S. genistoides, *Dunal, l. c.?* San José valley; November.

S. UMBELLIFERUM, var. GLABRESCENS: nearly glabrous; leaves oblong-lanceolate, acute or attenuate at the base. Santa Inez; also between San Bernardino and San Gabriel; January.

S. UMBELLIFERUM, var. INCANUM: hoary-pubescent; leaves oblong, small, (6–10 lines long,) entire. S. Californicum, *Dunal, l. c.?* Head-waters of San Antonio river, California; December. Berry the size of a small musket ball, black when dry.

S. UMBELLIFERUM, var. TRACHYCLADUM: branches angular and somewhat winged, the angles denticulate-scabrous, otherwise smooth; leaves ovate, smoothish, repandly toothed, abruptly narrowed to a petiole at the base; racemes on long peduncles, somewhat umbellate; calyx 5-cleft to the middle, the segments semiovate and rather acute. Santa Inez and San Buenaventura ranch; February. Stem shrubby, 2–3 feet long, apparently prostrate, fistular. Leaves $1\frac{1}{2}$–2 inches long, exclusive of the petiole, which is about half the length of the lamina, nearly

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smooth, green on both sides. Flowers apparently white, about as large as in S. nigrum. We are constrained to refer all the forms here noticed to one species, having specimens of intermediate characters that seem to unite them. The last variety may, however, prove to be a distinct species.

SOLANUM FLAVIDUM, *Torr. in Ann. Lyc. N. York*, 2, *p.* 227; *and in Marcy's Rep. p.* 292. Base of the Chiricahui mountains; July. Berries orange, the size of a small rifle ball. This is near S. elæagnifolium, *Cavan.*

PHYSALIS PUMILA, *Nutt. Trans. Amer. Phil. Soc.* (*n. ser.*) 5, *p.* 193. Los Playas; August. This species is omitted by Dunal in De Candolle's Prodromus.

DATURA METEL, *Linn. var?* QUINQUECUSPIDA: limb of the corolla 5-cuspidate with intermediate more or less acute angles, otherwise as in D. metel. San Bernardino and San Gabriel; April. A common plant in New Mexico, and west to the Pacific. It is called *Toloachi* by the Mexicans, who are acquainted with its narcotic powers. The leaves vary from entire to coarsely repand-toothed, and are pubescent on both surfaces, especially on the under. The corolla is white or pale purple, 6–8 inches long, and the limb often 4 inches in diameter. The 5 points of the limb are sometimes produced into subulate processes, and there are intermediate folds which are often rather acute, but not running out into a distinct tooth. It may be a distinct species from D. Metel.

LEPTOPHRAGMA PROSTRATA, *Benth. in D. C. Prodr.* 13, *pars* 1, *p.* 578. Salpiglossis? prostrata, *Hook. & Arn. Bot. Beechey, p.* 153. Salinas river; November. Common in southern California and eastward to the Rio Grande. The plant is an annual.

ASCLEPIAS TUBEROSA, *Linn.* Rio Mimbres; August. A narrow leaved form of the plant.

FRAXINUS VELUTINA, *Torr. in Emory's Rep. p.* 149. On the San Pedro river of the Gila; also abundant on the Rio Grande and some of its tributaries. Variable in the pubescence of the leaves. It sometimes attains the height of 30 feet.

MENODORA SCABRA, *Gray in Sill. Journ.* (2*d ser.*) 14, *p.* 44. Valley of Sauz; August. A low plant with a shrubby base and yellow flowers, well characterized by Dr. Gray.—(Tab. VII.)

OBIONE CANESCENS, *Moq. Chenop., p.* 74; *Torr. in Sitgreaves' Rep., p.* 169. Santa Cruz valley; August, (fem.;) Cariso creek, (mas.) A variety with narrow leaves and small toothed bracts.

CHENOPODINA LINEARIS, *Moq. in DC. Prodr.* 13, *pars* 2, *p.* 164, (*in part.*) Salsola linearis, *Ell. Sk.* 1, *p.* 322. S. Salsa? *Michx. Fl.* 1, *p.* 74. On the Gila river; June. This is, with little doubt, Elliott's plant, and also the common species of the Atlantic salt marshes. It is an annual, throwing up several erect branches from the base. Moquin has included two species in his C. linearis; one a shrubby plant, which may be called C. Moquini, and is C. linearis, *Torr. in Stansbury's Report, p.* 394.

CHENOPODIUM AMBROSIOIDES, *Linn.; Moq. l. c.* Banks of the Salinas river; November. Probably introduced from tropical America.

BLITUM BONUS-HENRICUS, *Reichenb.; Moq. l. c.* San Gabriel and Santa Inez; March. Introduced from Europe.

QUAMOCLIDION MULTIFLORUM, *Torr.; Gray in Sill. Journ.* (2*d ser.*), 15, *p.* 320. Nyctaginea? Torreyana, *Choisy in DC. Prodr.* 13, *p.* 430. Warner's ranch.

MIRABILIS LONGIFLORUS, *Linn.; Moquin in DC. Prodr.* 13, *pars* 2, *p.* 428. San Pedro river of the Gila; July. Differs from the Moquin's description in not being "viscidly pubescent." The lobes of the involucrum also are not linear, but lanceolate, and the tube of the perigonium is pubescent. It is the same plant as 1702 of Wright's New Mexican collection.

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OXYBAPHUS GLABRIFOLIUS, *Vahl, Enum.* 2, *p.* 40; *var. crassifolius, Moq. in DC. Prodr. l. c.* Santa Barbara; February. Stems numerous, from a woody base (as in O. angustifolia and in some other North American species). Involucre 1-flowered, 5-cleft; segments triangular-ovate, acute. Perianth campanulate-rotate. Stamens 5, exserted.

ABRONIA ARENARIA, *Menz. in Hook. Exot. Fl. t.* 193; *Moquin in DC. Prodr.* 13, *pars* 2, *p.* 435. San Louis Obispo; January.

ABRONIA MELLIFERA, *Dougl. in Hook. Bot. Mag. t.* 2879; *Moq. l. c.* On the Gila river and in the California desert; May to June.

POLYGONUM ACRE, *H. B. K.; Gray, Manual ed.* 2, *p.* 373. P. punctatum. *Ell. Sk.* 1, *p.* 455. Salinas valley; November.

RUMEX MARITIMUS, *Linn. Pursh. Fl.* 1, *p.* 248; *Hook. Fl. Bor. Am.* 2, *p.* 130. Banks of the Salinas river; November. A common plant in Oregon.

CHORIZANTHE (PTILOSEPALA) FIMBRIATA, *Nutt. in Pl. Gamb. (Journ. Acad. Sc. Philad.*, [*n. ser.*] 1, *p.* 168.) *Torr. in Williamson's Rep. t.* 8. San Diego, in sandy soils; April.

CHORIZANTHE (PTILOSEPALA) LACINIATA, (n. sp.): annual, erect; leaves all spatulate; scape trichotomously branched; segments of the involucre about half as long as the tube; sepals triangular acute, deeply cut into filiform segments. San Felipe; May. Very much like C. fimbriata, but in the latter the spine-like segments of the involucre are nearly as long as the tube, and the sepals are oblong and obtuse. Both are remarkably prone to separate at the joints of the scape.

ERIOGONUM ANGULOSUM, *Benth. Eriog. in Linn. Trans.* 17, *p.* 406, *t.* 18, *fig.* 1. San Filipe; May. The exterior sepals are nearly orbicular, remarkably concave, and one-half shorter than the interior ones. All of them glandularly ciliolate on the margin. Ovary and achenium glabrous. Embryo curved, with a long radicle. Allied to E. Abertianum, *Torr.*

ERIOGONUM TRICHOPODUM, *Torr. in Emory's Report, p.* 150 (incorrectly E. trichopes); *Benth. in D. C. Prodr.* 14, *pars* 1, *p.* 20. Sauz valley; August. The leaves are in a radical cluster, roundish-ovate, very obtuse, mostly cordate, entire or obscurely repand, somewhat hairy on both sides; the petioles are nearly twice as long as the lamina. Peduncles capillary, 4–8 lines long, spreading horizontally, or somewhat refracted. Involucre turbinate-infundibuliform, obtusely 4-toothed, about 5-flowered. Bracteoles linear-spatulate, shorter than the pedicel. Achenium triquetrous, glabrous. This species is rather common on the Gila and lower Colorado. The specimens collected by Dr. Antisell are nearly two feet high.

ERIOGONUM NUDUM, *Dougl.; Benth. l. c.* Plentiful on the head-waters of San Antonio river, California; December.

ERIOGONUM POLIFOLIUM, *Benth. in herb Torr., and in DC. Prodr.* 14, (*ined.*) San Louis Rey to San Diego; also in Santa Clara valley; February to April. A low shrubby species near E. fasciculatum. It is variable in pubescence, being sometimes almost smooth.

CENTROSTEGIA, Gray, Nov. Gen.

"Involucrum papyraceum, (demum coriaceum,) 1–2 florum, tubulosum, venosum, apice inequaliter 5-dentatum; dentibus mucronato-aristulatis, basim juxta tricalcaratum, calcaribus magnis, divaricatis, breviter subulato-aristatis. Perigonium 6-partitium, petaloideum; laciniis tenuibus, lineari-spathulatis, ungue hirsutulo. Stamina 9. Ovarium trigonum; styli 3, graciles; stigmatibus capitatis. Achenium triquetrum. Embryo curvatum. Herba annua, demissa, glabra, a basi ramosa; ramis diffusis, floriferis flexuosis; foliis radicalibus spathulatis; ramealibus

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bracteisve minimis oppositis et alternis, sepius 2–3-fidis, segmentis subulatis ; involucris ad nodis solitariis sessilibus.''—Gray.

" C. THURBERI.'' On sandy hill-sides, near San Filipe, where it was first discovered by Mr. Thurber, in 1852, May. A remarkable genus of the tribe Eriogoneae, the characters of which were drawn by Dr. Gray, and have only been slightly enlarged and modified, as the specimens collected by Dr. Antisell are more complete than those of Mr. Thurber. The plant is from 3–4 inches high, with a small cluster of spatulate leaves at the base. There are no proper rameal leaves, but only bracts, which are often 2–3-cleft, with mucronate segments. The upper portion of the involucre is triquetrous ; the 3 processes or horns near the base are widely spreading, and usually a little curved. Sometimes there is a fourth smaller horn. I have found most of the involucres to contain two flowers.—(Tab. VIII.)

OREODAPHNE CALIFORNICA, *Nees, Syst. Laur. p.* 463. Umbellularia Californica and Drymophyllum pauciflorum, *Nutt. Sylv.* 1, *p.* 85 *and* 87. Santa Inez ; February. This is the celebrated California laurel or bay tree.

ANEMOPSIS CALIFORNICA, *Nutt. in Tayl. Ann. Nat. Hist.* 1, *p.* 136 ; *Hook. and Arn. Bot. Beechey, p.* 390, *t.* 92. Los Angeles ; April.

SIMMONDSIA CALIFORNICA, *Nutt. in Hook. Lond. Jour. Bot.; Torr. in Mex. Bound. Rep. cum tab. (ined.)* Banks of the San Pedro of the Gila; July.

JUGLANS RUPESTRIS, *Engelm. var.?* MAJOR, *Torr. in Sitgreave's Rep. p.* 171, *t.* 16. Puerto del Dado ; July. In fruit.

PLATANUS MEXICANA, *Moricand, Pl. Rar. d'Amer. t.* 26. P. RACEMOSUS, *Nutt. in Audub. Birds of Amer. t.* 362, *and Sylv.* 1, *p.* 47, *t.* 15. P. Californicus, *Benth. Bot. Sulph. p.* 54. Near San Luis Rey, and San Diego ; April.

QUERCUS AGRIFOLIA, *Née ; Hook. Ic. t.* 377, *Nutt. Sylv.* 1, *p.* 5, *t.* 2. Salinas valley. One of the most common oaks of California. It varies much in the size and form of its leaves and acorns, but is, in general, easily recognized.

URTICA URENS, *Linn.; Pursh, Fl.* 1, *p.* 113. Rio Pajaro ; November. Introduced from Europe, probably by the Spaniards.

EPHEDRA ANTISIPHILITICA, *Berland.; Endl. Syn. Conif. p.* 263. Common on the Gila.

AGAVE AMERICANA, *Linn.; Kunth Enum.* 5, *p.* 821. Vallecitas, California ; May. The *Maguay* of the Mexicans, affording the beverage called by them *pulquê*. It has probably been brought from Central America.

ZIGADENUS DOUGLASII, *Torr. in Bot. Whipple's Rep.* Z. chloranthus, *Hook. and Arn. Bot. Beechey p.* 402*? excl. syn.* Near Santa Barbara ; February. Near Amianthium Nuttallii of Gray, who now refers that plant to that section of the genus Zigadenus, which has the gland. of the perianth obscure. (See Manual of Botany, ed. 2, p. 476.)

CALOCHORTUS VENUSTUS, *Benth. in Hort. Trans. Lond.* (*n. ser.*) 1. *p.* 412, *t.* 15, *fig.* 3 ; *Lindl. Bot. Reg. t.* 1669. San Isabel to Los Angeles ; March. A beautiful species, with large white flowers which are singularly marked with yellow and blood-red at the base.

CALOCHORTUS SPLENDENS, *Benth. l. c. t.* 15, *f.* 1. *Lindl. Bot. Reg. t.* 1676. Los Angeles ; March. Also a very beautiful plant ; the large flowers being pale lilac, with purple spots at the base.

SISYRINCHIUM BERMUDIANA, *Linn.;* var. ANCEPS, *Torr. Fl. New York,* 2 *p.* 291. Los Angeles; March.

DICHELOSTEMMA CONGESTA, *Kunth, Enum.* 4, *p.* 47. Brodiæa congesta, *J. E. Smith.* Los Angeles to Santa Barbara ; March.

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COMMELYNA ERECTA, *Linn.; Ell. Sk.* 1, *p.* 48. Los Playas; August. The specimens agree in almost every particular with Elliott's description, (l. c.,) except that the larger petaloid sepals are reniform rather than cordate. The small inner sepal is lanceolate, and placed between the two connate exterior sepals.

PHALARIS ARUNDINACEA, *Linn.; Torr. Fl. New York*, 2, *p.* 418. On the Gila; June.

PASPALUM DISTICHUM, *Linn.? Ell. Sk.* 1, *p.* 108. Banks of the San Pedro of the Gila; July. Widely spread over the warmer parts of North America. P. vaginatum, *Swartz*, seems to be hardly distinct from this species.

PANICUM LACHNANTHUM (n. sp.): culm ascending, and with the leaves glabrous; panicle oblong, erect, the branches alternate and loosely racemose; all the spikelets pedicellate, oblong; inferior glume very short, glabrous; the superior and the inferior palea of the abortive flower much attenuate, and somewhat awned at the tip, densely covered with very long white silky hairs; perfect flower ovate-lanceolate acuminate, and mucronate, glabrous, finely striate and dotted longitudinally. Paspalum sericeum, *Scheele, in Linnœa*, 23, *p.* 341? On the Burro mountains; August. Plant about 18 inches long; the panicle 3–6 inches. A very remarkable species.

SETARIA VIRIDIS, *Beauv.; Kunth, Enum.* 1, *p.* 151. Pennisetum viride, *R. Br.* Burro mountains; August.

GASTRIDIUM AUSTRALE, *Beauv.; Steudel Gram. p.* 185. Milium lendigerum, *Linn.* San José valley; November. This has not before been noticed as a North American plant. Steudel states that it has been found in Chili. It is a common grass in southern Europe. Very probably it has been brought to America in grain.

SPOROBOLUS AIROIDES. Agrostis airoides, *Torr. in Ann. Lyc. N. York*, 2, *p.* 151. A. (Sporobolus) airoides, *Torr. in Marcy's Rep. p.* 30. Valley of the Mimbres; August.

POA ANNUA, *Linn.; Kunth, Enum.* 1, *p.* 349. Banks of the Salinas river; November. This little grass has become quite extensively naturalized in California.

POA COMPRESSA, *Linn.; Kunth, Enum.* 1, *p.* 355. Los Angeles; March. A slender form, with a loose, open panicle.

UNIOLA SPICATA, *Linn.* Brizopyrum spicatum, *Hook. & Arn. Fl. Bor.-Amer.* 2, *p.* 254, excl. the synonyms of Uniola stricta, *Torr.*, and U. multiflora, *Nutt.* San Felipe. It is found also in Oregon, and is in all essential characters like the plant of the Atlantic States.

AVENA FATUA, *Linn.; Kunth, Enum.* 1, *p.* 302. Abundant in various parts of California, being the common *wild oat* of that country.

ANDROPOGON NUTANS, *Linn.; Kunth, Enum.* 1, *p.* 504. Sorghum nutans, *Gray, Man. ed.* 2. On the river Mimbres; August.

POLYPODIUM INTERMEDIUM, *Hook. & Arn. Bot. Beechey, p.* 405; *Hook. Fl. Bor.-Amer.* 2, *p.* 258. Santa Inez, and plains of the Salinas.

ADIANTUM CHILENSE, *Kaulf. Fil. p.* 207; *Hook. and Grev. Ic. Fil. t.* 183. Shore of Santa Inez and Santa Barbara. Some of our botanists have named this A. tenerum. It is common in California and New Mexico.

ASPIDIUM ARGUTUM, *Kaulf. Enum. Fil. p.* 242. Temecula Hill, and valley of the Salinas, California.

PTERIS LANUGINOSA, *Kaulf. Enum. Fil. p.* 189; *Hook. and Arn. Bot. Beechey, p.* 405. Valley of the Salinas.

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HYPOLEPIS CALIFORNICA, *Hook. Fil.* 2, *p.* 71, *t.* 88 (*A.*) Between San Bernardino and San Gabriel. A neat little form, growing in bunches.

GYMNOGRAMMA TRIANGULARIS, *Kaulf.; Hook. & Arn. Bot. Beechey, p.* 161 *and* 405. Shore of Santa Inez.

AZOLLA CAROLINIANA, *Willd. Sp.* 5, *p.* 541; *Torr. Fl. New York*, 2, *p.* On stagnant water; Salinas valley.

PARMELIA CAPERATA, *Ach.; Tuckerm. Syn. Lich. N. States, p.* 29. Rocks and trees on the Salinas river.

RAMALINA MENZIESII, *Taylor; Tuckerm. Lich. Exsicc. No.* 57. R. retiformis, *Tuck. Syn. Lich. p.* 13. Abundant on oak trees on the Rio Pajaro, and in many other parts of California. It is a beautiful and singular species, and is called *Lace Lichen.* Cattle are said to eat it with avidity.

RAMALINA SCOPULORUM var. TENUISSIMA. *Hook. & Arn. in Bot. Beechy's Voy., p.* 163. Plains of the Salinas river.

USNEA BARBATA, var. RUBIGINEA, *Tuckerm. Syn. Lych. N. States, p.* 8. With the last.

MACROCYSTIS PYRIFERA, *Agardh; Harv. Nereis Bor.-Amer.* 1, *p.* 84. Sea shore south of Santa Barbara. Dr. Hooker and Prof. Harvey admit but one species of this genus.

HALIDRYS OSMUNDACEA, *Harv. l. c. t.* 2. Cystoseira osmundacea, *Agardh.* With the last.

FUCUS CERANOIDES, *Linn.; Harv. l. c.* The specimens are in fruit. With the last.

PHYLLOSPORA MENZIESII, *Agardh; Harv. l. c. t.* 3, *B.* With the last.

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CHAPTER II.

SYNOPTICAL TABLES OF BOTANICAL LOCALITIES.

BY THOMAS ANTISELL, M. D.

[The following tabulated catalogue of plants, arranged according to the habitat, will, it is hoped, serve as an useful adjunct to the botanical report.—T. A.]

SALINAS VALLEY.

Escholtzia Douglasii.
Oxalis stricta.
Hosackia cytisoides.
Rosa cinnamomea.
Ribes Californicum.
Eryngium petiolatum.
Erigeron canadense.
subdecurrens.
Baccharis consanguinea.
Helianthus petiolaris.
Bahia confertiflora.
Burrielia tenerrima.
Artemisia pycnocephala.
biennis.
Gnaphalium Californicum.
Antennaria margaritacea.
Senecio longilobus.
Pentstemon centranthifolius.
Verbena prostrata.
Micromeria Douglasii.
Eritrichium chorisianum.
Erythrea floribunda.
Navaretia squarrosa.
var. diffusa.
Solanum umbellif. var. in canum.
Leptophragma prostrata.
Chenopodium androsoides.
Polygonum acre.
Rumex maritimus.
Quercus agrifolia.
Poa annua.
Avena fatua.
Polypodium intermedium.
Aspidium argutum.
Pteris lanuginosa.
Azella Caroliniana.
Parmelia coperata.
Ramalina menziesii.
Ramalina retiformis.
* * * * ?
Usnea barbata.

LOS ANGELES, SAN GABRIEL, AND SAN BERNARDINO PLAINS.

Ranunculus Californicus.
Platystemon Californicum.
var. leiocarpum.
Viola peduncula.
Calandrinea menziesii.
Claytonia perfoliata.
Erodium cicuticum v. moschata.
Lathyris vestitus.
Melilotus parviflorus.
Medicago denticulata.
Hosackia strigosia.
Astragalus densifolia.
Lupinus hirsutissimus.
Horkelia fusca.
Rosa cinnamomea.
Œnothera strigulosa.
Megarhiza Californica.
Sanicula bipannitifida.
Peucedanum utriculatum
Erigeron Philadelphicum.
Douglasii.
Baccharis Douglasii.
Helianthus petiolaris.
Heliomeris.
Lagia glandulosa.
platyphylla.
Matricaria discoidea.
Gnaphalium Californicum.
Senecio Californicus.
Calais linearifolia.
Dodecatheon Meadii.
Anagallis arvensis.
Plantago patagonica.
Pentstemon centranthifolius.
Scrophularia nodosa.
Diplacus glutinosus, var. pubescens.
Mimulus luteus.
Eunanus.
Collinsia bicolor.
Orthocarpus purpurascens.

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PLATE IV. HOSACKIA PUBERULA, (page 10.)

Fig. 1. The calyx; enlarged.
Fig. 2. Parts of the corolla: *a*, the standard; *b*, *b*, the wings; *c*, *c*, the keel-petals; equally enlarged.
Fig. 3. Monadelphous stamens, with the pistil enclosed in the stamineal sheath; also magnified.
Fig. 4. Part of a stamen; more magnified.
Fig. 5. The pistil; enlarged.
Fig. 6. A pod of the natural size; part of one valve removed to show the seeds.

PLATE V. OLNEYA TESOTA, (page 10.)

Fig. 1. A separate flower; a little enlarged.
Fig. 2. The calyx; more enlarged.
Fig. 3. Parts of the corolla: *a*, the standard; *b*, *b*, the wings; *c*, *c*, the keel-petals; equally enlarged.
Fig. 4. The diadelphous stamens; enlarged.
Fig. 5. Part of a separate stamen; magnified.
Fig. 6. The pistil; magnified.
Fig. 7. The ovary laid open; showing the numerous ovules.

PLATE VI. APLOPAPPUS SPHÆROCEPHALUS, (page 12.)

Fig. 1. A head of flowers; somewhat enlarged.
Fig. 2. A separate flower; considerably magnified.
Fig. 3. The corolla laid open, showing the stamens and style.
Fig. 4. A separate stamen.
Fig. 5. Branches of the style, showing the stigmatic lines; much magnified.
Fig. 6. A ripe achenium with its pappus; considerably enlarged.

PLATE VII. MENODORA SCABRA, (page 18.)

Fig. 1. A flower; enlarged.
Fig. 2. The corolla laid open; more enlarged.
Fig 3. A stamen; still more enlarged.
Fig. 4. The pistil; equally magnified.
Fig. 5. The ovary, longitudinally opened; more enlarged.
Fig. 6. Ripe pod, showing the dehiscence; moderately enlarged.
Fig. 7. Longitudinal section of the seed; more magnified.

PLATE VIII. CENTROSTEGIA THURBERI, (page 20.)

Fig. 1. Involucre; considerably magnified.
Fig. 2. Limb of the same laid open, and more enlarged.
Fig. 3. Flower; still more enlarged.
Fig. 4. A sepal, with a stamen attached to the claw; highly magnified.
Fig. 5. The pistil; moderately magnified.
Fig. 6. A ripe achenium; more enlarged.
Fig. 7. A mature seed; equally magnified.
Fig. 8. The embryo; also equally magnified.

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